

The diagram illustrates a video signal processing system with the following components and signal paths:

- CH INTERFACE BOARD (2):**
  - Inputs: DMUX (21-1), FRAME INS. (21-2), OC-12/48 (21-4), NETWORK INTERFACES (21-5), BOARD (21-6).
  - Internal: DMUX MUX (21-3), MASTER TP ES (21-7), REF. CLK. SEL. (21-8), L/F (21-9), MAIN PLL (21-10), I/F (21-11).
  - Outputs: REF. CLK. (22-1), MASTER TP ES (22-2).
- STS CROSS CONNECT UNIT (WORK) (3A):**
  - Inputs: STS-TS SECT (240x15, 240x15) (32-3), CROSS (32-4), FRAME SYNC (32-5), DUB PFC (32-6), DUB PFC (32-7), MASTER TP ES (32-8), MASTER TP ES (32-9), MASTER TP ES (32-10), MASTER TP ES (32-11), I/F (32-12).
  - Internal: CROSS (32-1), FRAME SYNC (32-2), DUB PFC (32-3), DUB PFC (32-4), MASTER TP ES (32-5), MASTER TP ES (32-6), MASTER TP ES (32-7), MASTER TP ES (32-8), MASTER TP ES (32-9), MASTER TP ES (32-10), MASTER TP ES (32-11), I/F (32-12).
  - Outputs: STS CROSS CONNECT UNIT (PFC1) (3B), SYNC (3C), DSI (3D), DSI (3E), DSI (3F), DSI (3G), DSI (3H), DSI (3I), DSI (3J), DSI (3K), DSI (3L), DSI (3M), DSI (3N), DSI (3O), DSI (3P), DSI (3Q), DSI (3R), DSI (3S), DSI (3T), DSI (3U), DSI (3V), DSI (3W), DSI (3X), DSI (3Y), DSI (3Z), DSI (3AA), DSI (3AB), DSI (3AC), DSI (3AD), DSI (3AE), DSI (3AF), DSI (3AG), DSI (3AH), DSI (3AI), DSI (3AJ), DSI (3AK), DSI (3AL), DSI (3AM), DSI (3AN), DSI (3AO), DSI (3AP), DSI (3AQ), DSI (3AR), DSI (3AS), DSI (3AT), DSI (3AU), DSI (3AV), DSI (3AW), DSI (3AX), DSI (3AY), DSI (3AZ), DSI (3BA), DSI (3BB), DSI (3BC), DSI (3BD), DSI (3BE), DSI (3BF), DSI (3BG), DSI (3BH), DSI (3BI), DSI (3BJ), DSI (3BK), DSI (3BL), DSI (3BM), DSI (3BN), DSI (3BO), DSI (3BP), DSI (3BQ), DSI (3BR), DSI (3BS), DSI (3BT), DSI (3BU), DSI (3BV), DSI (3BW), DSI (3BX), DSI (3BY), DSI (3BZ), DSI (3CA), DSI (3CB), DSI (3CC), DSI (3CD), DSI (3CE), DSI (3CF), DSI (3CG), DSI (3CH), DSI (3CI), DSI (3CJ), DSI (3CK), DSI (3CL), DSI (3CM), DSI (3CN), DSI (3CO), DSI (3CP), DSI (3CQ), DSI (3CR), DSI (3CS), DSI (3CT), DSI (3CU), DSI (3CV), DSI (3CW), DSI (3CX), DSI (3CY), DSI (3CZ), DSI (3DA), DSI (3DB), DSI (3DC), DSI (3DD), DSI (3DE), DSI (3DF), DSI (3DG), DSI (3DH), DSI (3DI), DSI (3DJ), DSI (3DK), DSI (3DL), DSI (3DM), DSI (3DN), DSI (3DO), DSI (3DP), DSI (3DQ), DSI (3DR), DSI (3DS), DSI (3DT), DSI (3DU), DSI (3DV), DSI (3DW), DSI (3DX), DSI (3DY), DSI (3DZ), DSI (3EA), DSI (3EB), DSI (3EC), DSI (3ED), DSI (3EE), DSI (3EF), DSI (3EG), DSI (3EH), DSI (3EI), DSI (3EJ), DSI (3EK), DSI (3EL), DSI (3EM), DSI (3EN), DSI (3EO), DSI (3EP), DSI (3EQ), DSI (3ER), DSI (3ES), DSI (3ET), DSI (3EU), DSI (3EV), DSI (3EW), DSI (3EX), DSI (3EY), DSI (3EZ), DSI (3FA), DSI (3FB), DSI (3FC), DSI (3FD), DSI (3FE), DSI (3FF), DSI (3FG), DSI (3FH), DSI (3FI), DSI (3FJ), DSI (3FK), DSI (3FL), DSI (3FM), DSI (3FN), DSI (3FO), DSI (3FP), DSI (3FQ), DSI (3FR), DSI (3FS), DSI (3FT), DSI (3FU), DSI (3FV), DSI (3FW), DSI (3FX), DSI (3FY), DSI (3FZ), DSI (3GA), DSI (3GB), DSI (3GC), DSI (3GD), DSI (3GE), DSI (3GF), DSI (3GG), DSI (3GH), DSI (3GI), DSI (3GJ), DSI (3GK), DSI (3GL), DSI (3GM), DSI (3GN), DSI (3GO), DSI (3GP), DSI (3GQ), DSI (3GR), DSI (3GS), DSI (3GT), DSI (3GU), DSI (3GV), DSI (3GW), DSI (3GX), DSI (3GY), DSI (3GZ), DSI (3HA), DSI (3HB), DSI (3HC), DSI (3HD), DSI (3HE), DSI (3HF), DSI (3HG), DSI (3HH), DSI (3HI), DSI (3HJ), DSI (3HK), DSI (3HL), DSI (3HM), DSI (3HN), DSI (3HO), DSI (3HP), DSI (3HQ), DSI (3HR), DSI (3HS), DSI (3HT), DSI (3HU), DSI (3HV), DSI (3HW), DSI (3HX), DSI (3HY), DSI (3HZ), DSI (3IA), DSI (3IB), DSI (3IC), DSI (3ID), DSI (3IE), DSI (3IF), DSI (3IG), DSI (3IH), DSI (3II), DSI (3IJ), DSI (3IK), DSI (3IL), DSI (3IM), DSI (3IN), DSI (3IO), DSI (3IP), DSI (3IQ), DSI (3IR), DSI (3IS), DSI (3IT), DSI (3IU), DSI (3IV), DSI (3IW), DSI (3IX), DSI (3IY), DSI (3IZ), DSI (3JA), DSI (3JB), DSI (3JC), DSI (3JD), DSI (3JE), DSI (3JF), DSI (3JG), DSI (3JH), DSI (3JI), DSI (3JJ), DSI (3JK), DSI (3JL), DSI (3JM), DSI (3JN), DSI (3JO), DSI (3JP), DSI (3JQ), DSI (3JR), DSI (3JS), DSI (3JT), DSI (3JU), DSI (3JV), DSI (3JW), DSI (3JX), DSI (3JY), DSI (3JZ), DSI (3KA), DSI (3KB), DSI (3KC), DSI (3KD), DSI (3KE), DSI (3KF), DSI (3KG), DSI (3KH), DSI (3KI), DSI (3KJ), DSI (3KK), DSI (3KL), DSI (3KM), DSI (3KN), DSI (3KO), DSI (3KP), DSI (3KQ), DSI (3KR), DSI (3KS), DSI (3KT), DSI (3KU), DSI (3KV), DSI (3KW), DSI (3KX), DSI (3KY), DSI (3KZ), DSI (3LA), DSI (3LB), DSI (3LC), DSI (3LD), DSI (3LE), DSI (3LF), DSI (3LG), DSI (3LH), DSI (3LI), DSI (3LJ), DSI (3LK), DSI (3LL), DSI (3LM), DSI (3LN), DSI (3LO), DSI (3LP), DSI (3LQ), DSI (3LR), DSI (3LS), DSI (3LT), DSI (3LU), DSI (3LV), DSI (3LW), DSI (3LX), DSI (3LY), DSI (3LZ), DSI (3MA), DSI (3MB), DSI (3MC), DSI (3MD), DSI (3ME), DSI (3MF), DSI (3MG), DSI (3MH), DSI (3MI), DSI (3MJ), DSI (3MK), DSI (3ML), DSI (3MM), DSI (3MN), DSI (3MO), DSI (3MP), DSI (3MQ), DSI (3MR), DSI (3MS), DSI (3MT), DSI (3MU), DSI (3MV), DSI (3MW), DSI (3MX), DSI (3MY), DSI (3MZ), DSI (3NA), DSI (3NB), DSI (3NC), DSI (3ND), DSI (3NE), DSI (3NF), DSI (3NG), DSI (3NH), DSI (3NI), DSI (3NJ), DSI (3NK), DSI (3NL), DSI (3NM), DSI (3NN), DSI (3NO), DSI (3NP), DSI (3NQ), DSI (3NR), DSI (3NS), DSI (3NT), DSI (3NU), DSI (3NV), DSI (3NW), DSI (3NX), DSI (3NY), DSI (3NZ), DSI (3OA), DSI (3OB), DSI (3OC), DSI (3OD), DSI (3OE), DSI (3OF), DSI (3OG), DSI (3OH), DSI (3OI), DSI (3OJ), DSI (3OK), DSI (3OL), DSI (3OM), DSI (3ON), DSI (3OO), DSI (3OP), DSI (3OQ), DSI (3OR), DSI (3OS), DSI (3OT), DSI (3OU), DSI (3OV), DSI (3OW), DSI (3OX), DSI (3OY), DSI (3OZ), DSI (3PA), DSI (3PB), DSI (3PC), DSI (3PD), DSI (3PE), DSI (3PF), DSI (3PG), DSI (3PH), DSI (3PI), DSI (3PJ), DSI (3PK), DSI (3PL), DSI (3PM), DSI (3PN), DSI (3PO), DSI (3PP), DSI (3PQ), DSI (3PR), DSI (3PS), DSI (3PT), DSI (3PU), DSI (3PV), DSI (3PW), DSI (3PX), DSI (3PY), DSI (3PZ), DSI (3QA), DSI (3QB), DSI (3QC), DSI (3QD), DSI (3QE), DSI (3QF), DSI (3QG), DSI (3QH), DSI (3QI), DSI (3QJ), DSI (3QK), DSI (3QL), DSI (3QM), DSI (3QN), DSI (3QO), DSI (3QP), DSI (3QQ), DSI (3QR), DSI (3QS), DSI (3QT), DSI (3QU), DSI (3QV), DSI (3QW), DSI (3QX), DSI (3QY), DSI (3QZ), DSI (3RA), DSI (3RB), DSI (3RC), DSI (3RD), DSI (3RE), DSI (3RF), DSI (3RG), DSI (3RH), DSI (3RI), DSI (3RJ), DSI (3RK), DSI (3RL), DSI (3RM), DSI (3RN), DSI (3RO), DSI (3RP), DSI (3RQ), DSI (3RR), DSI (3RS), DSI (3RT), DSI (3RU), DSI (3RV), DSI (3RW), DSI (3RX), DSI (3RY), DSI (3RZ), DSI (3SA), DSI (3SB), DSI (3SC), DSI (3SD), DSI (3SE), DSI (3SF), DSI (3SG), DSI (3SH), DSI (3SI), DSI (3SJ), DSI (3SK), DSI (3SL), DSI (3SM), DSI (3SN), DSI (3SO), DSI (3SP), DSI (3SQ), DSI (3SR), DSI (3SS), DSI (3ST), DSI (3SU), DSI (3SV), DSI (3SW), DSI (3SX), DSI (3SY), DSI (3SZ), DSI (3TA), DSI (3TB), DSI (3TC), DSI (3TD), DSI (3TE), DSI (3TF), DSI (3TG), DSI (3TH), DSI (3TI), DSI (3TJ), DSI (3TK), DSI (3TL), DSI (3TM), DSI (3TN), DSI (3TO), DSI (3TP), DSI (3TQ), DSI (3TR), DSI (3TS), DSI (3TT), DSI (3TU), DSI (3TV), DSI (3TW), DSI (3TX), DSI (3TY), DSI (3TZ), DSI (3UA), DSI (3UB), DSI (3UC), DSI (3UD), DSI (3UE), DSI (3UF), DSI (3UG), DSI (3UH), DSI (3UI), DSI (3UJ), DSI (3UK), DSI (3UL), DSI (3UM), DSI (3UN), DSI (3UO), DSI (3UP), DSI (3UQ), DSI (3UR), DSI (3US), DSI (3UT), DSI (3UU), DSI (3UV), DSI (3UW), DSI (3UX), DSI (3UY), DSI (3UZ), DSI (3VA), DSI (3VB), DSI (3VC), DSI (3VD), DSI (3VE), DSI (3VF), DSI (3VG), DSI (3VH), DSI (3VI), DSI (3VJ), DSI (3VK), DSI (3VL), DSI (3VM), DSI (3VN), DSI (3VO), DSI (3VP), DSI (3

FIG. 2

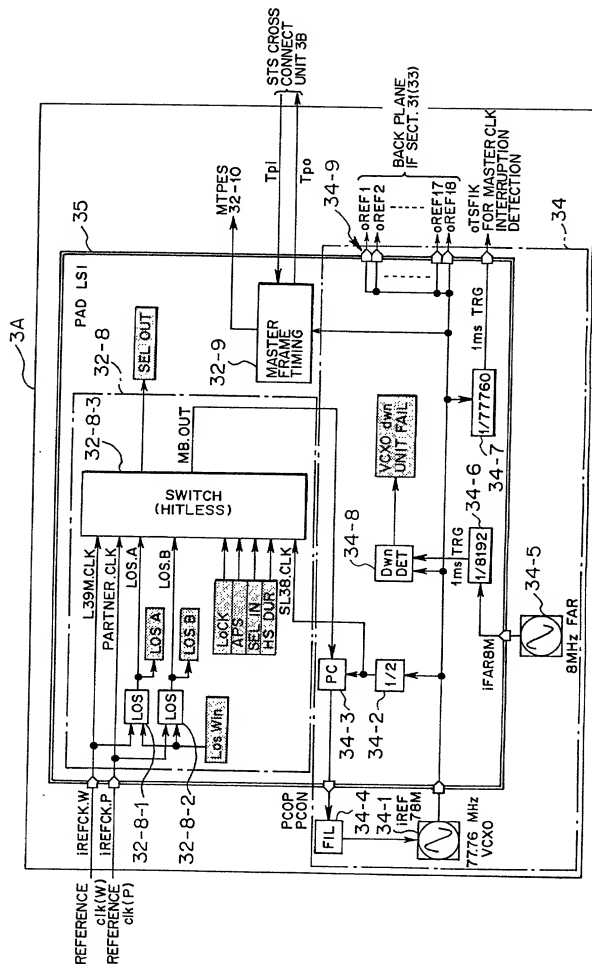


FIG. 3

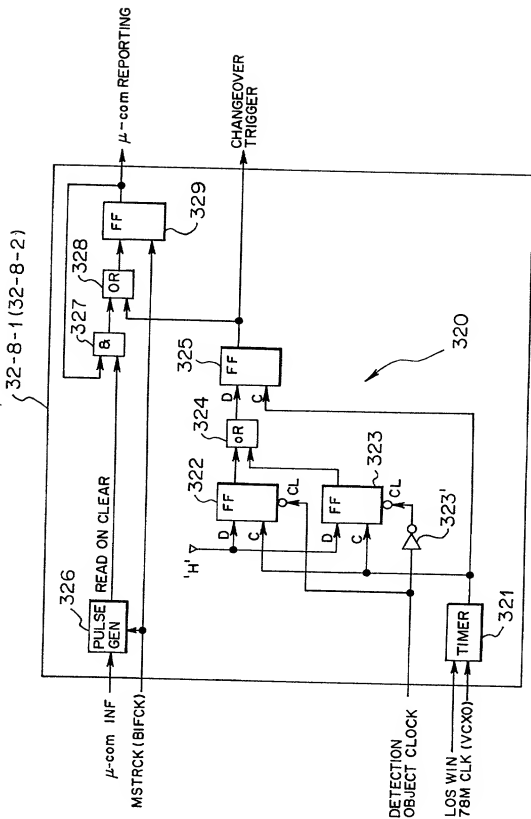


FIG. 4A

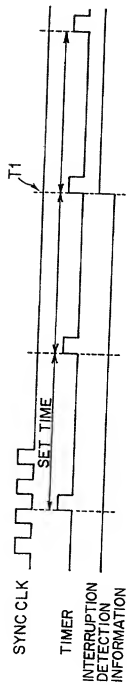
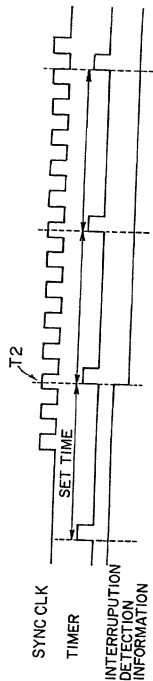


FIG. 4B



# FIG. 5

$\mu$ -com LOS WIN				WINDOW TIME	DIVIDING TIMER
D3	D2	D1	D0	(ns)	
0	0	0	0	25.7	77.76 M/4
0	0	0	1	77.2	77.76 M/8
0	0	1	0	128.6	77.76 M/12
0	0	1	1	180.7	77.76 M/16
0	1	0	0	231.5	77.76 M/20
0	1	0	1	282.9	77.76 M/24
0	1	1	0	334.3	77.76 M/28
0	1	1	1	385.8	77.76 M/32
1	0	0	0	437.3	77.76 M/36
1	0	0	1	488.7	77.76 M/40
1	0	1	0	540.1	77.76 M/44
1	0	1	1	591.6	77.76 M/48
1	1	0	0	643.0	77.76 M/52
1	1	0	1	694.5	77.76 M/56
1	1	1	0	745.9	77.76 M/60
1	1	1	1	797.3	77.76 M/64

# FIG. 6

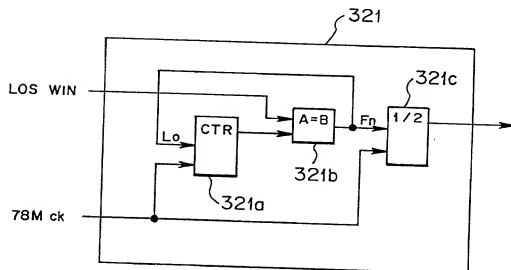
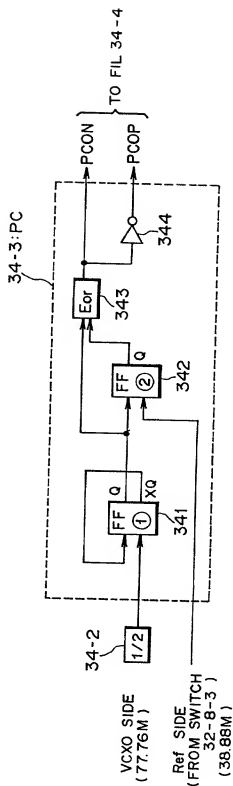


FIG. 7



IN CASE VCXO SIDE AND REFERENCE CLOCK SIDE  
HAVE AN EQUAL PERIOD

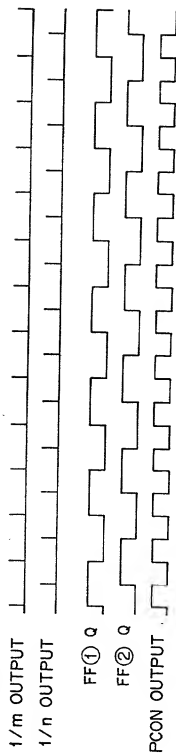


FIG. 8A

IN CASE FREQUENCY OF VCXO SIDE IS HIGHER  
THAN REFERENCE CLOCK FREQUENCY

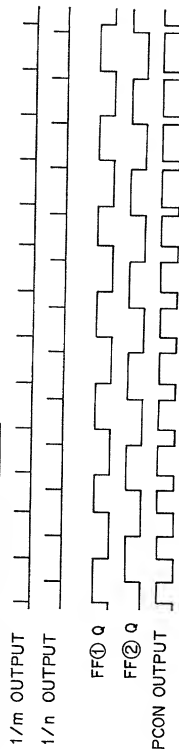
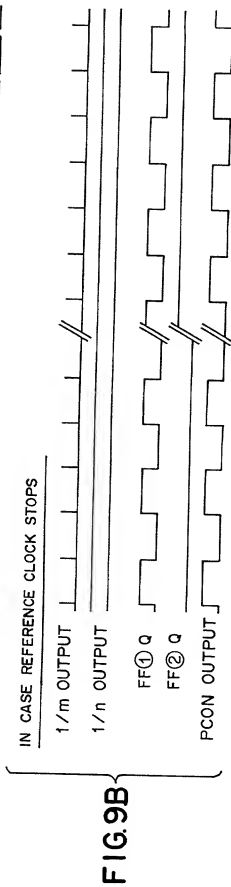
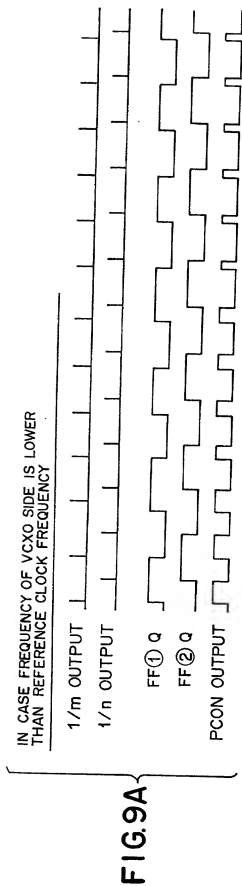


FIG. 8B







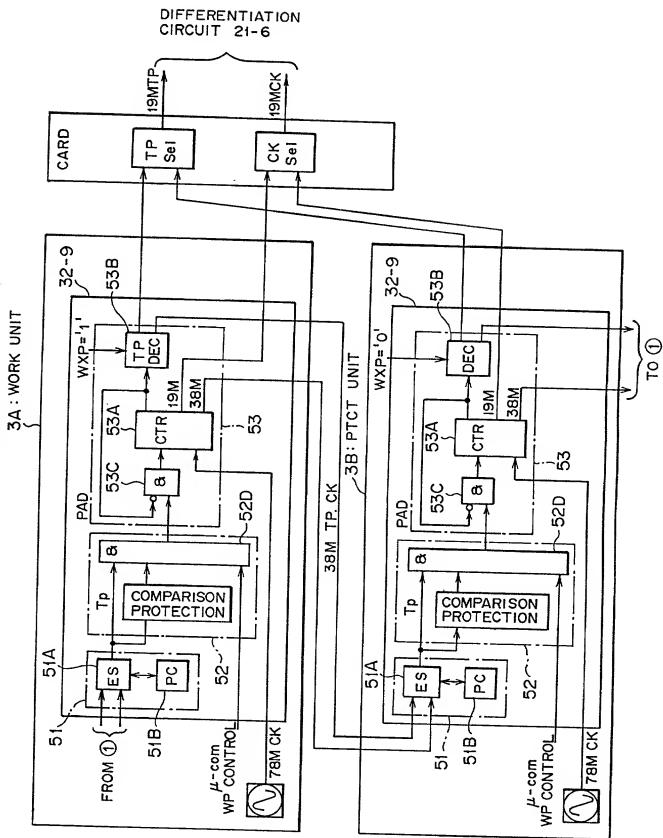


FIG. 12

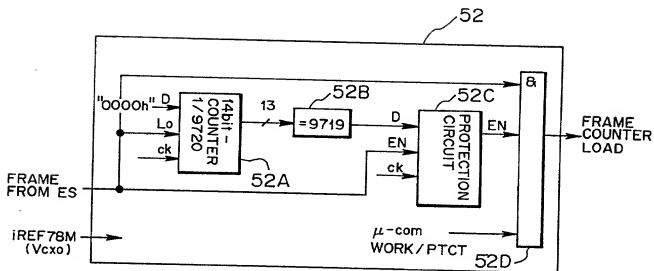
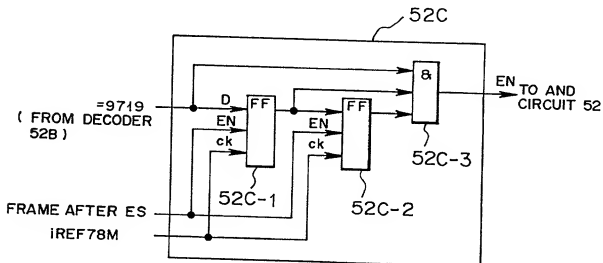
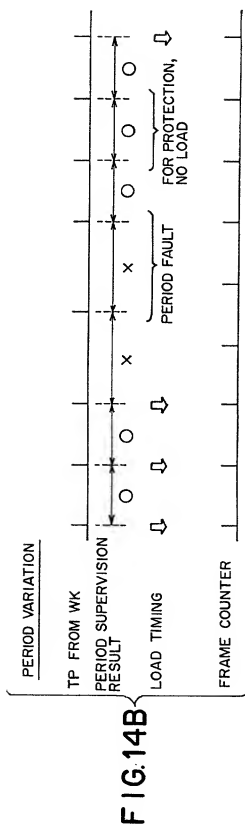
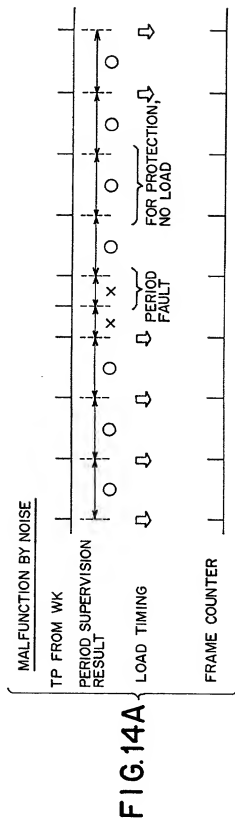
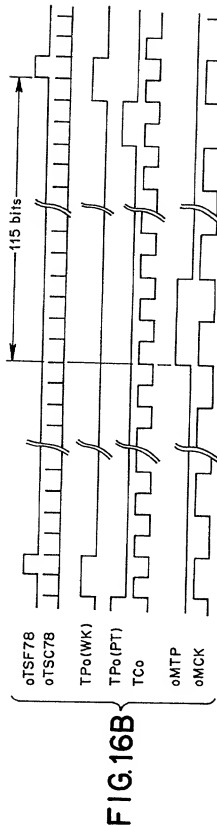
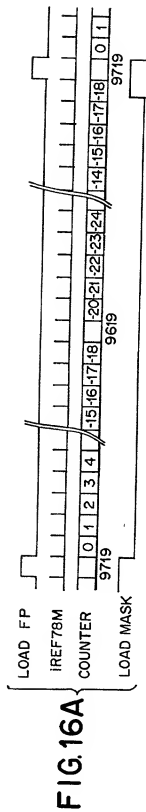


FIG. 13









WORK UNIT

WORK CK (70M)

MSTR CTR

LOAD MASK

T<sub>po</sub>

T<sub>co</sub>

FIG. 17A

PTCT UNIT

LOAD TP

T<sub>ci</sub>

PTCT CK (78M)

CTR Lo

LOAD MASK

MSTR CTR

T<sub>po</sub>

T<sub>co</sub>

FIG. 17B

WORK UNIT

LOAD TP (W)

T<sub>ci</sub>

WORK CK (78M)

CTR Lo

LOAD MASK

MSTR CTR

FIG. 17C

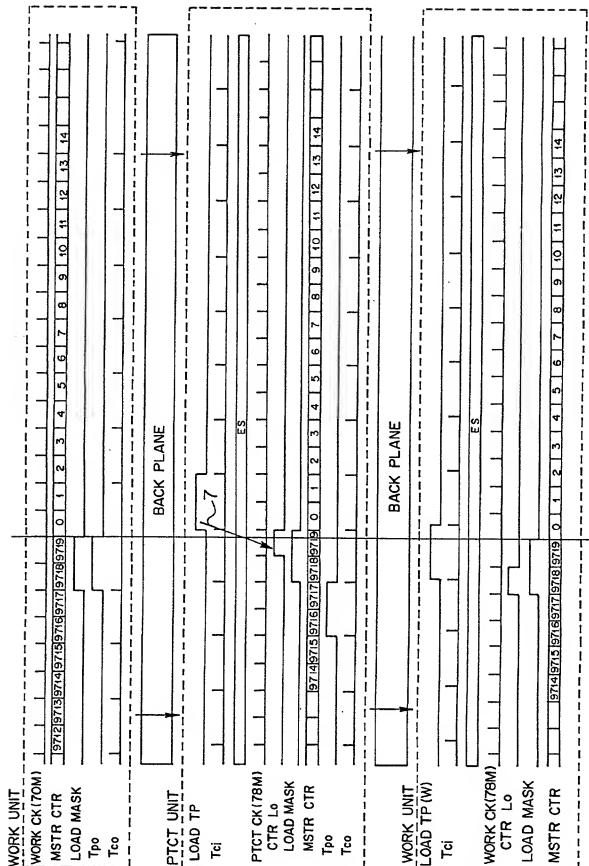






FIG. 19

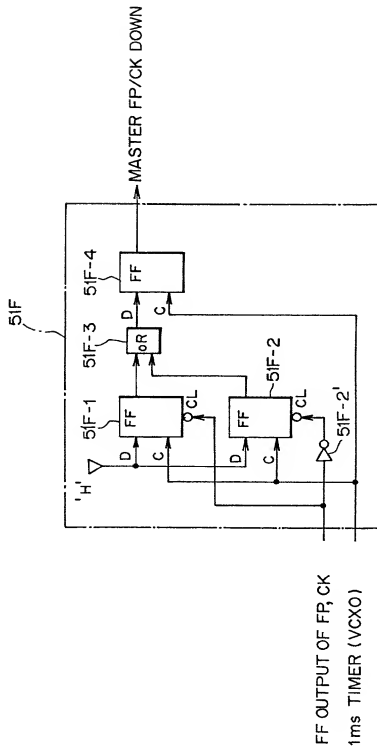


FIG. 20

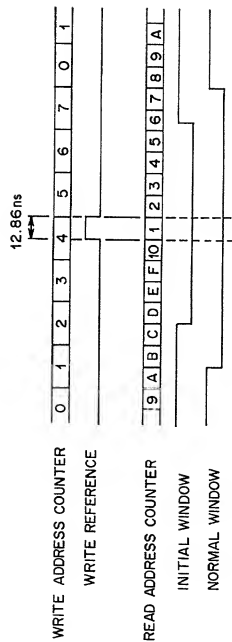
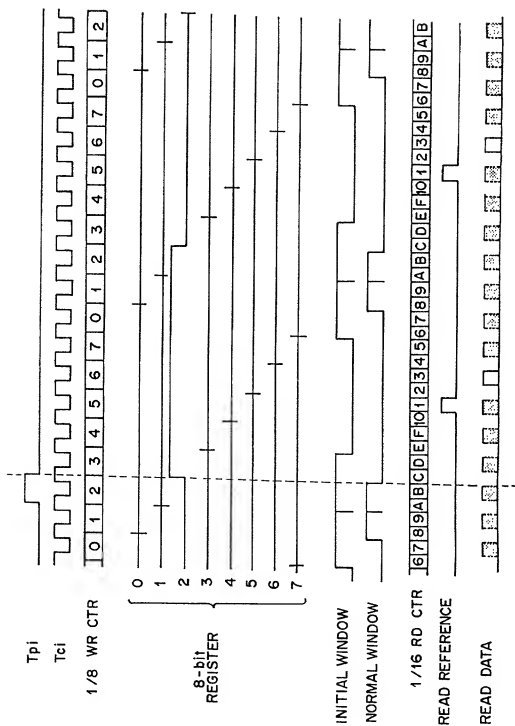


FIG. 21



[INTERNAL TIMER (1ms/100ms)]

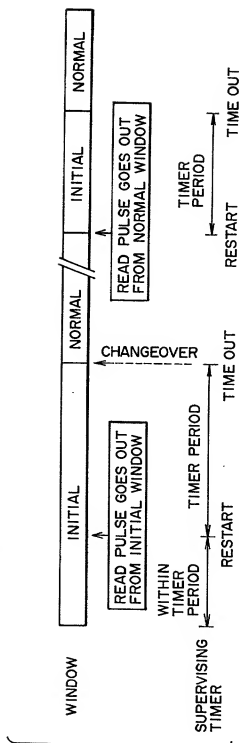


FIG. 22A

[EXTERNAL TIMER (EXT TP)]

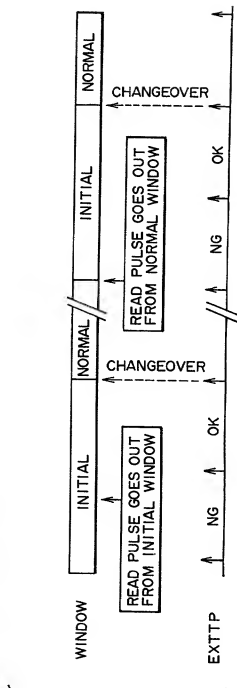
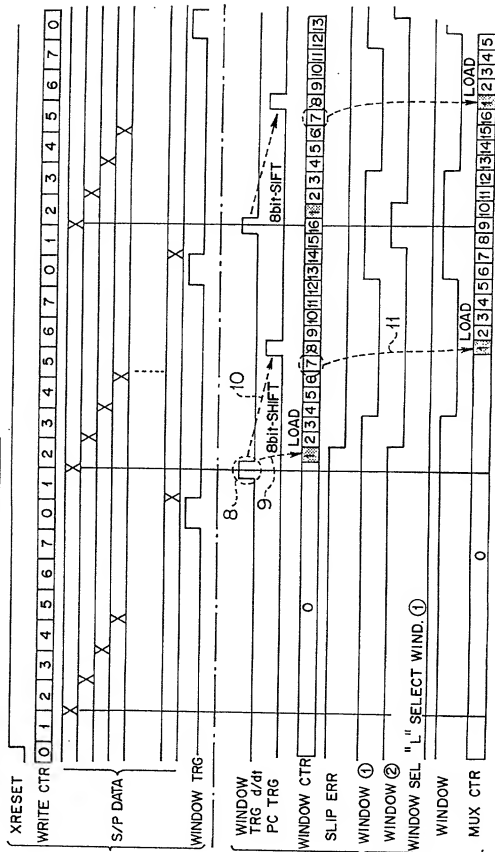


FIG. 22B

FIG. 23

1) OPERATION AFTER POWER ON RESET IS CANCELED  
(INITIAL WINDOW)



ES SECT. 51A

PC SECT. 51B

FIG. 24

2) OPERATION FOR CANCELLATION AFTER 1ms PROTECTION  
(INITIAL WINDOW → NORMAL WINDOW)

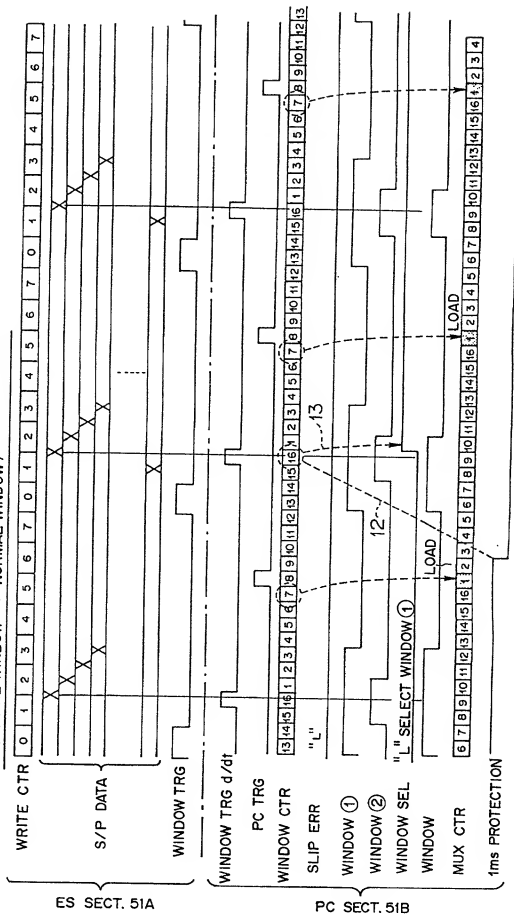


FIG. 25

3) STATE WHEREIN READ TP IS DISPLACED TO LEFT SIDE OF INITIAL WINDOW

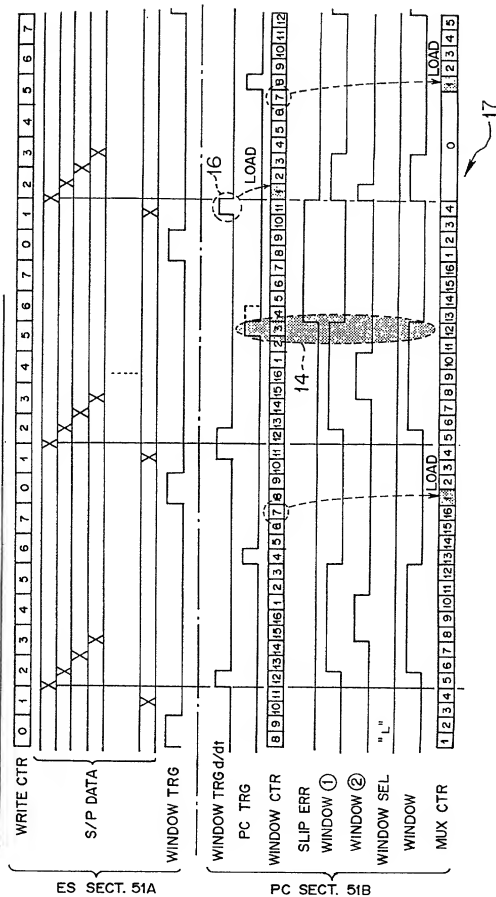


FIG. 26

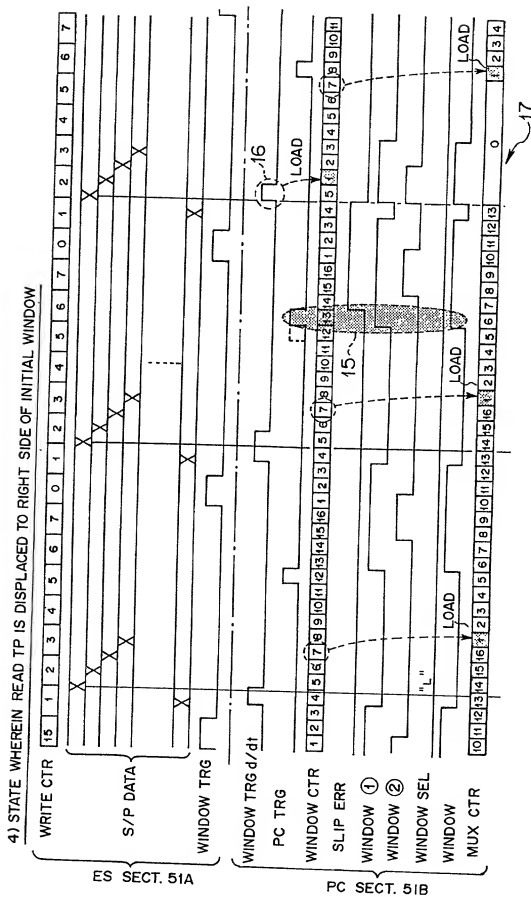




FIG. 27

6) STATE WHEREIN READ TP IS DISPLACED TO LEFT SIDE OF NORMAL WINDOW

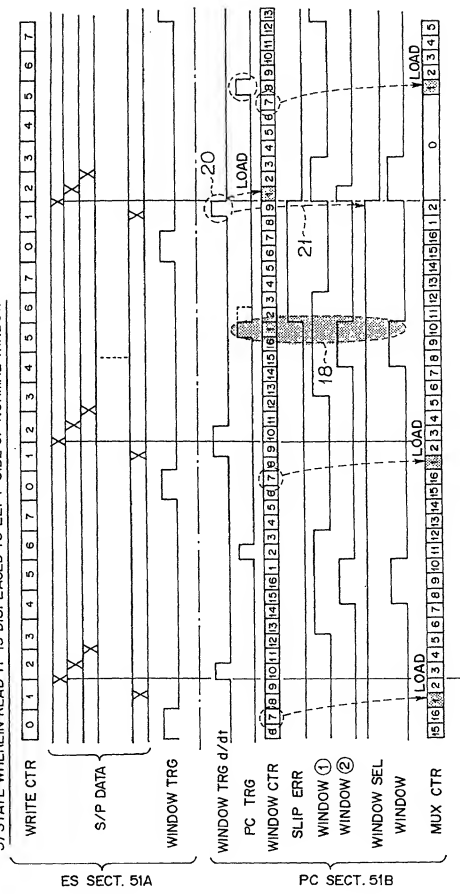


FIG. 28

6) STATE WHEREIN READ TP IS DISPLACED TO RIGHT SIDE OF NORMAL WINDOW

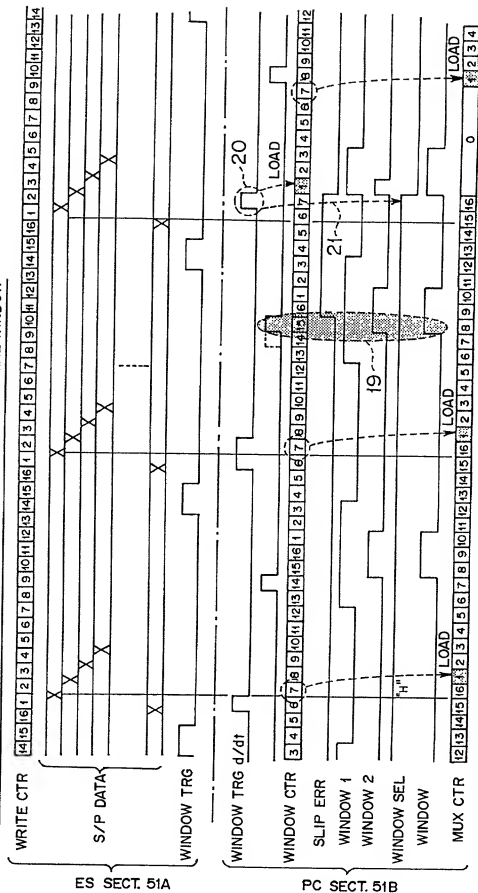
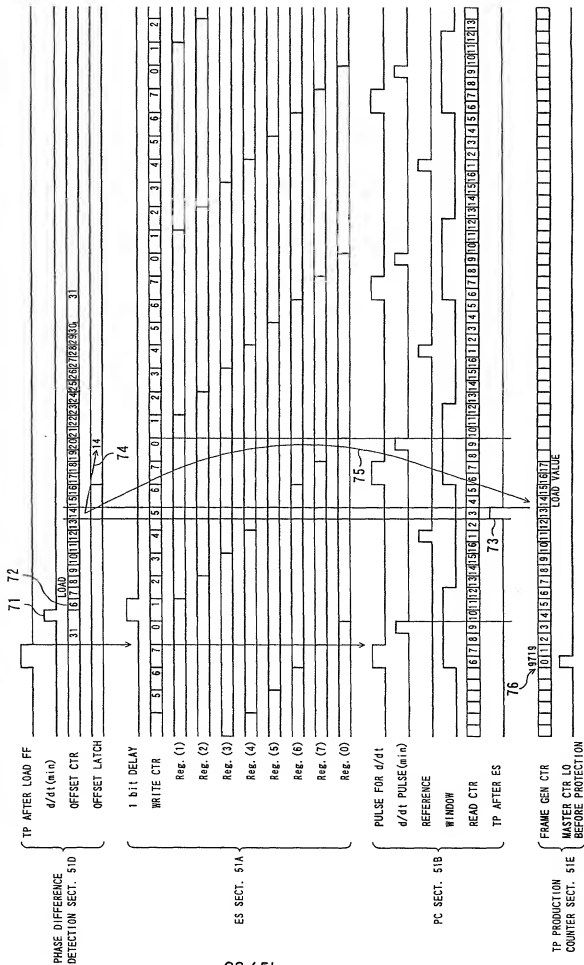




FIG. 30

PHASE OFFSET DETECTION SIDE EXHIBITS MAXIMUM DELAY FROM INPUTTED TP



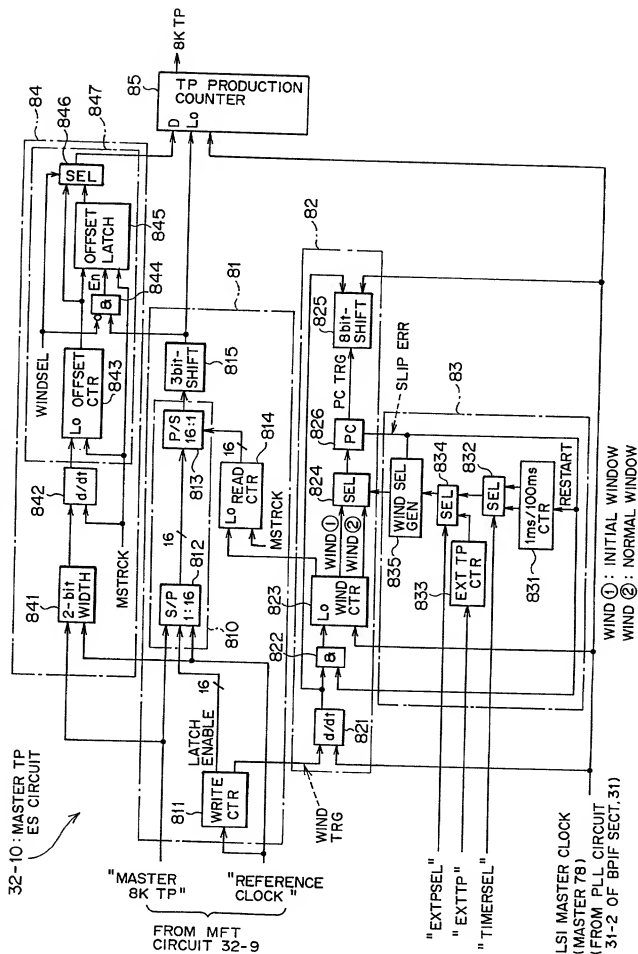


FIG. 32

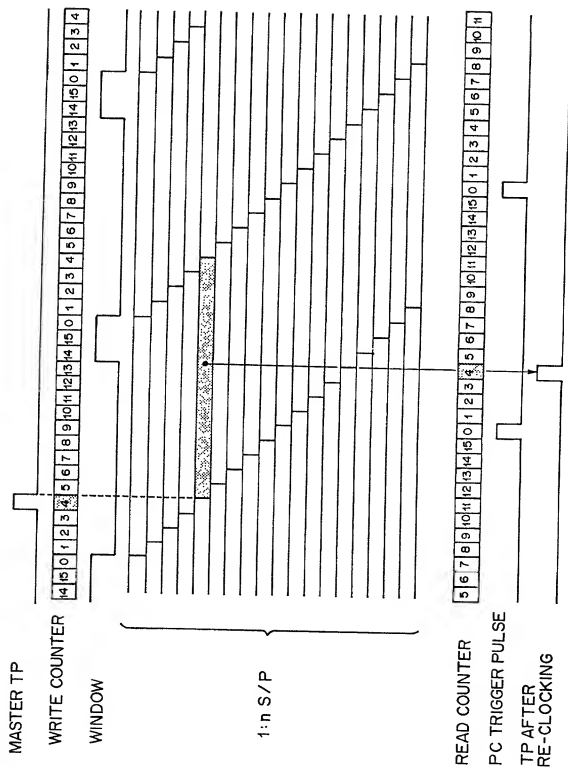


FIG. 33

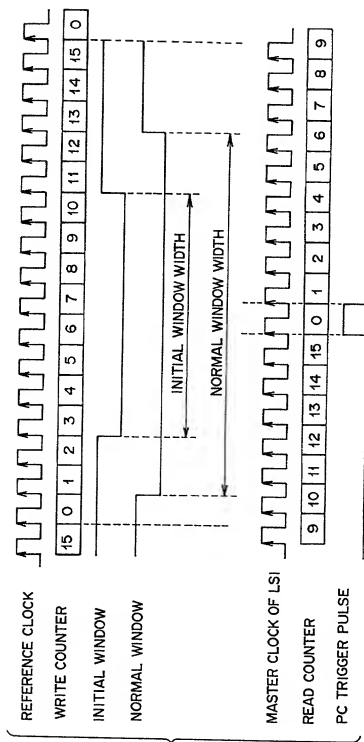


FIG. 34

PHASE OFFSET DETECTION SIDE EXHIBITS MINIMUM DELAY FROM INPUTTED TP

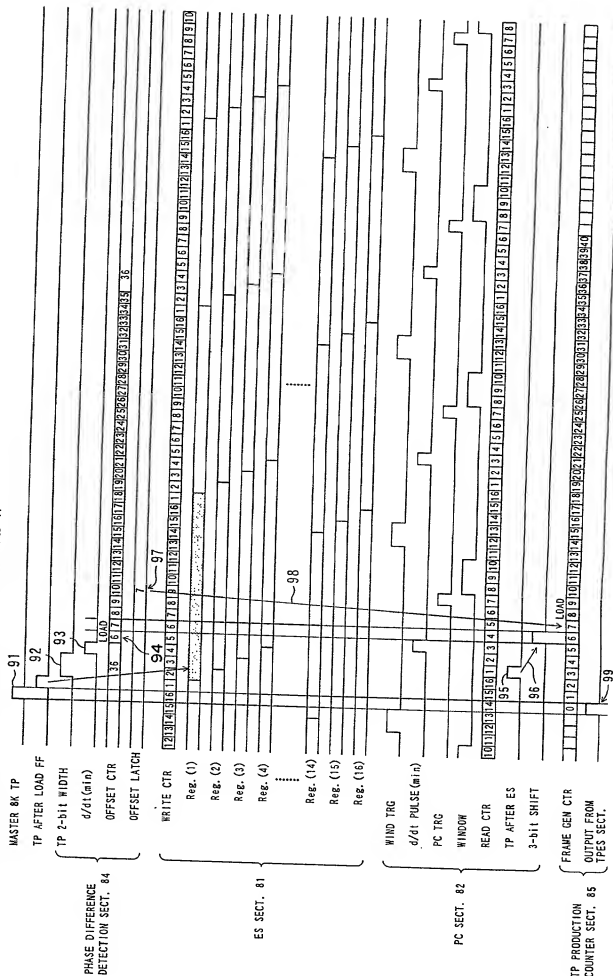




FIG. 35

PHASE OFFSET DETECTION SIDE EXHIBITS MAXIMUM DELAY FROM INPUTTED TP

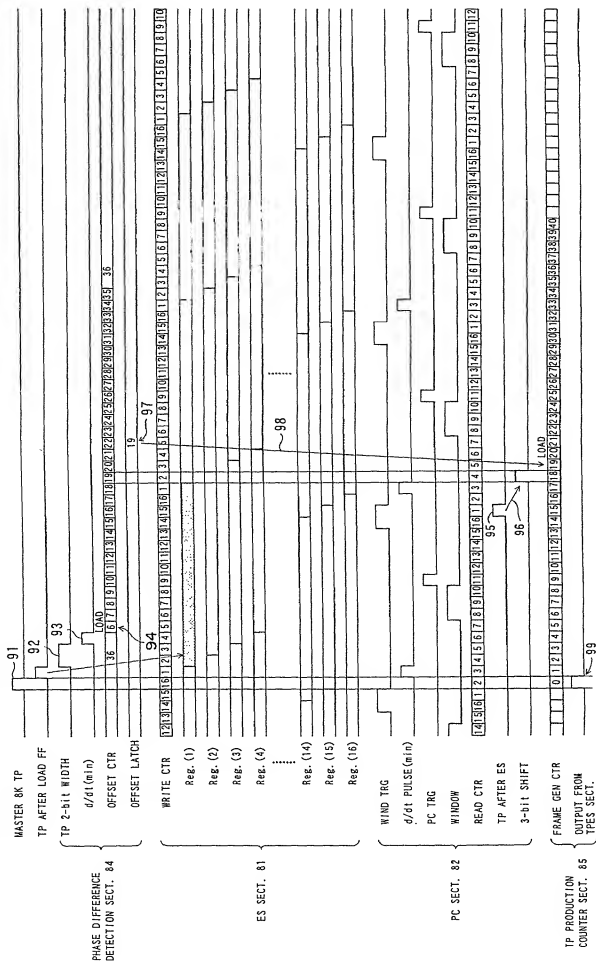


FIG. 36

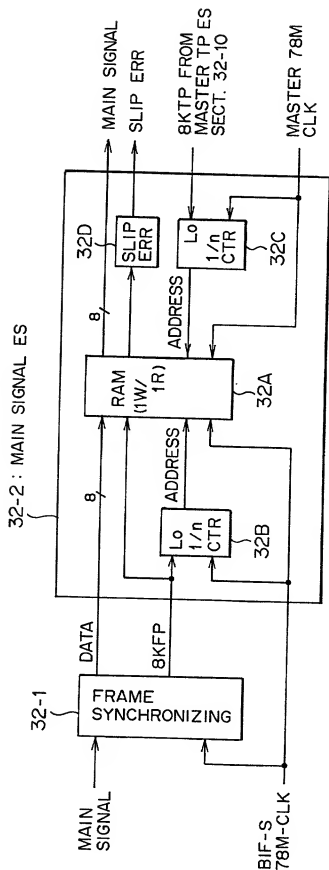
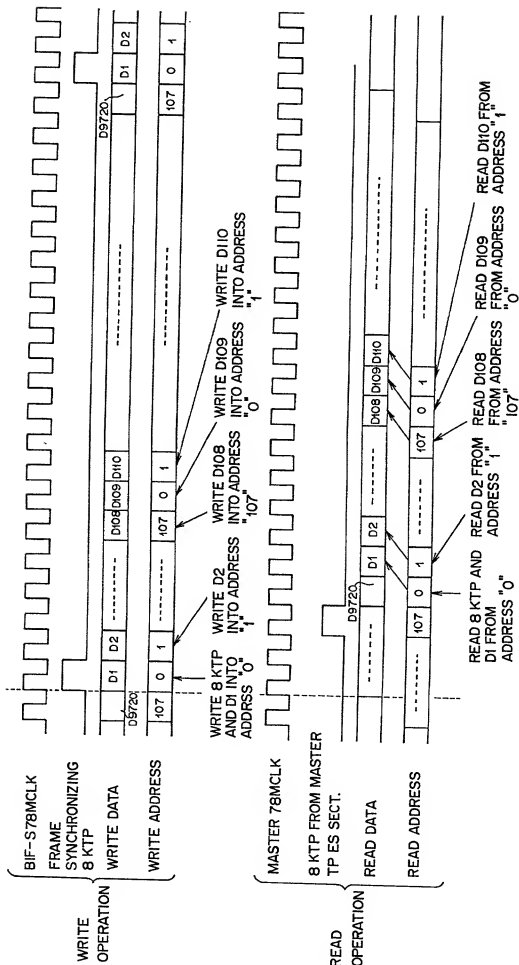
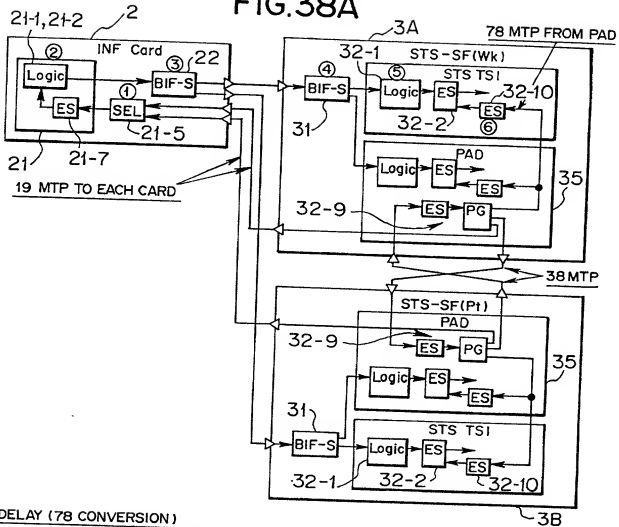


FIG. 37



# FIG.38A



## Bit-DELAY (78 CONVERSION)

- ① TP PHASE DIFFERENCE FROM STS SF WK, P1 OF INF CARD--Min:0ns Max:4bits
- ② bit-DELAY OF CMOS LOGIC ON INF CARD ----- Min:1ns Max:28bits
- ③ MUX SIDE bit-DELAY OF BIF-SLSI ON INF CARD ----- Min:22.5bits Max:39.5bits
- ④ DMUX SIDE bit-DELAY OF BIF-SLSI ON STS-SF CARD --- Min:4.875bits Max:6.875bits
- ⑤ LOGIC DELAY OF STS TSI LSI ----- Min:4bits Max:14bits

TOTAL Min:31.375bits Max:92.375bits

# FIG.38B

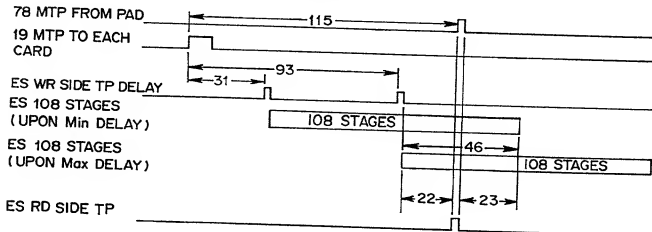
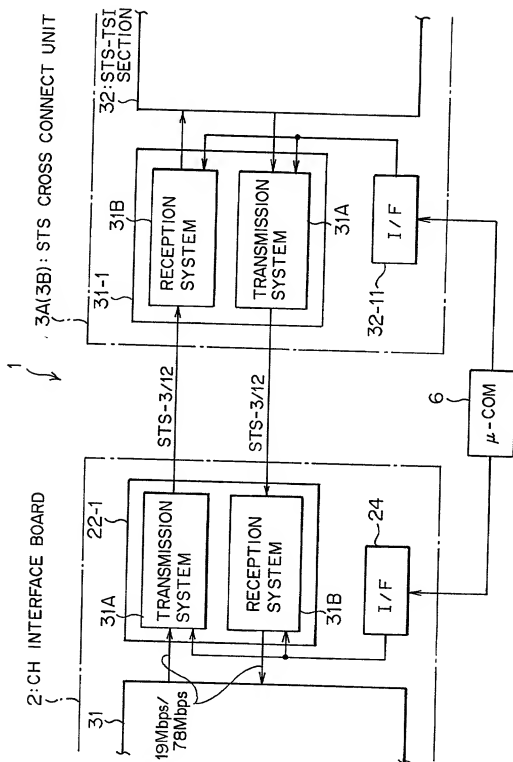


FIG. 39



# FIG. 40A

BANDWIDTH	① → ② → ③ → ④	OPERATION MODE
0	19.44 M → 19.44 M → 155.52 M → 155.52 M	OPERATION MODE A
1	77.76 M → 77.76 M → 155.52 M → 622.08 M	OPERATION MODE B

# FIG. 40B

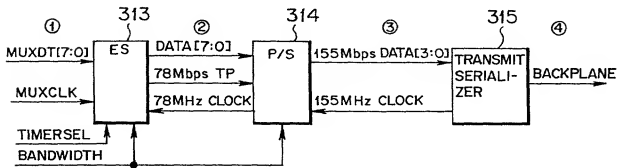


FIG. 41

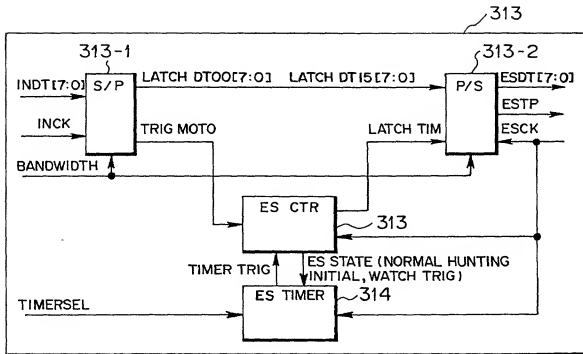


FIG.42

TRANSMISSION SIDE FORMAT CONVERSION

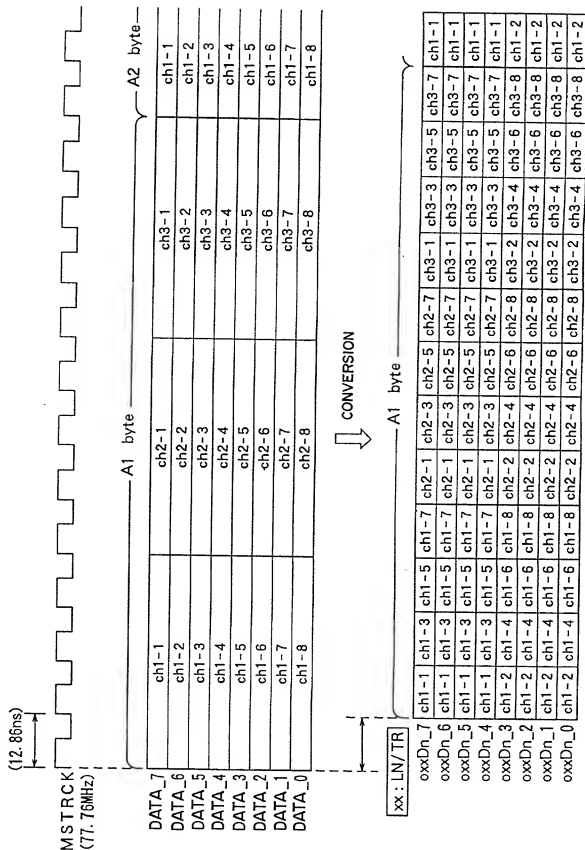




FIG. 43A

BANDWIDTH	①→②→③	OPERATION MODE
0	155.52M → 155.52M → 19.44M	OPERATION MODE A
1	622.08M → 155.52M → 77.76M	OPERATION MODE B
1	155.52M → 155.52M → 77.76M	OPERATION MODE C

FIG. 43B

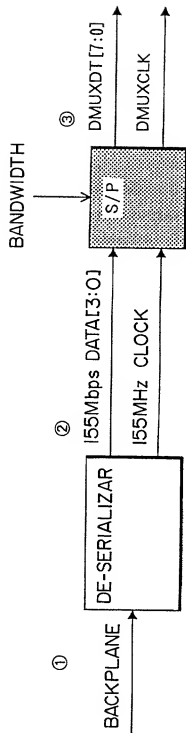
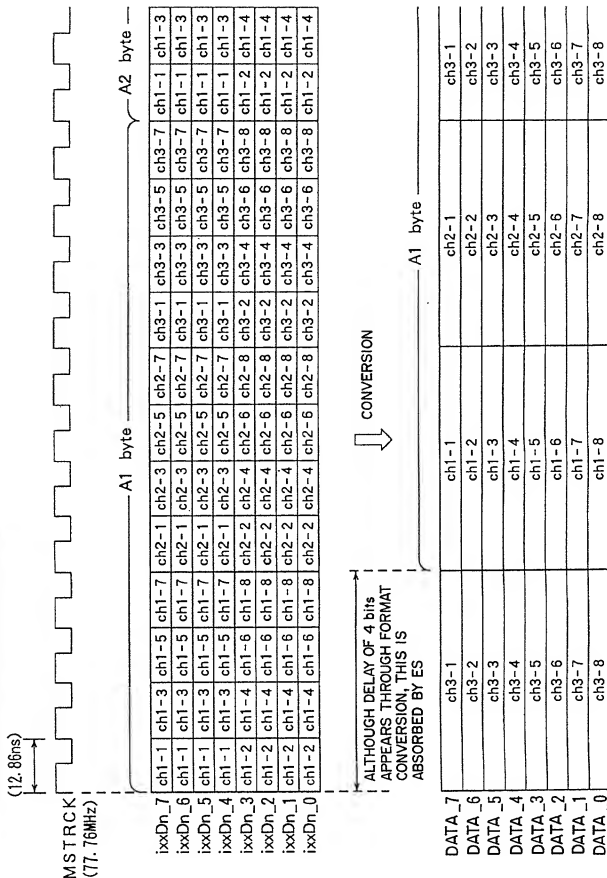
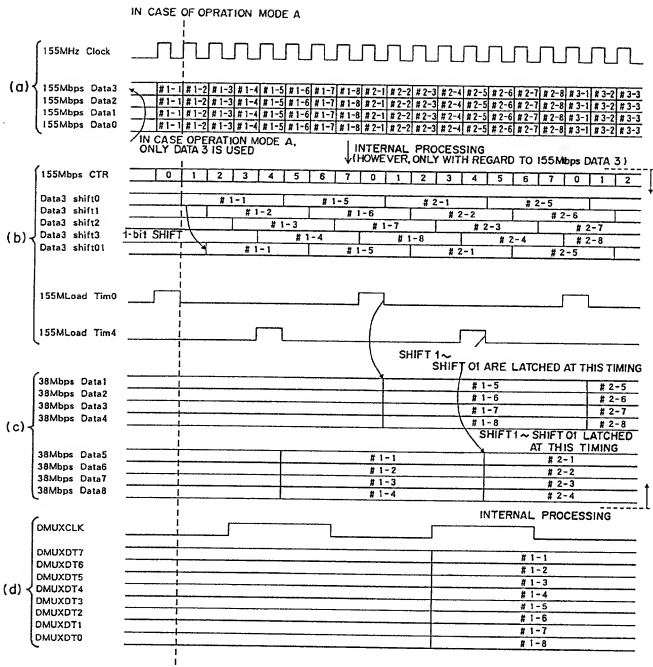


FIG. 44

RECEPTION SIDE FORMAT CONVERSION

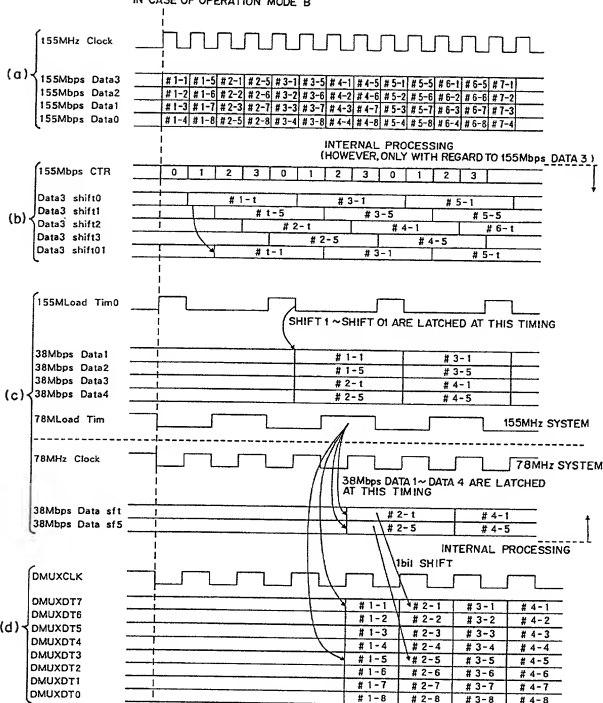


# FIG. 45



# FIG. 46

IN CASE OF OPERATION MODE B



# FIG. 47

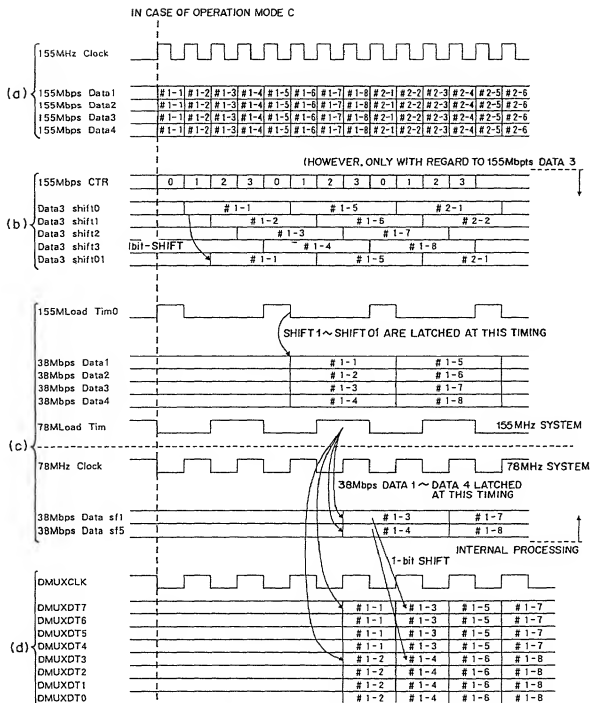


FIG. 48

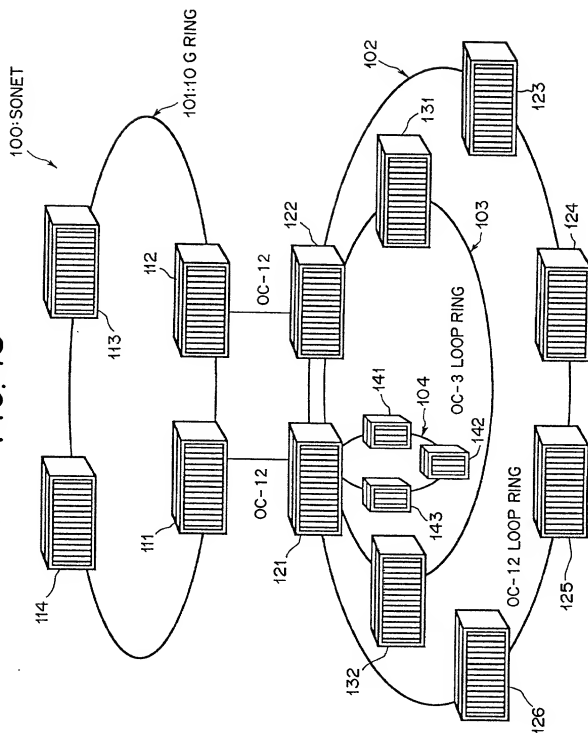


FIG. 49

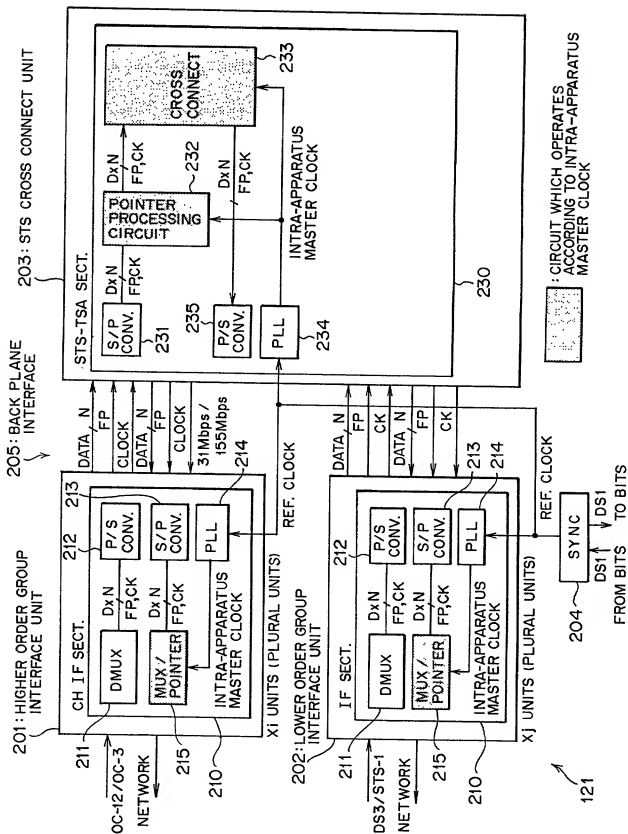


FIG. 50

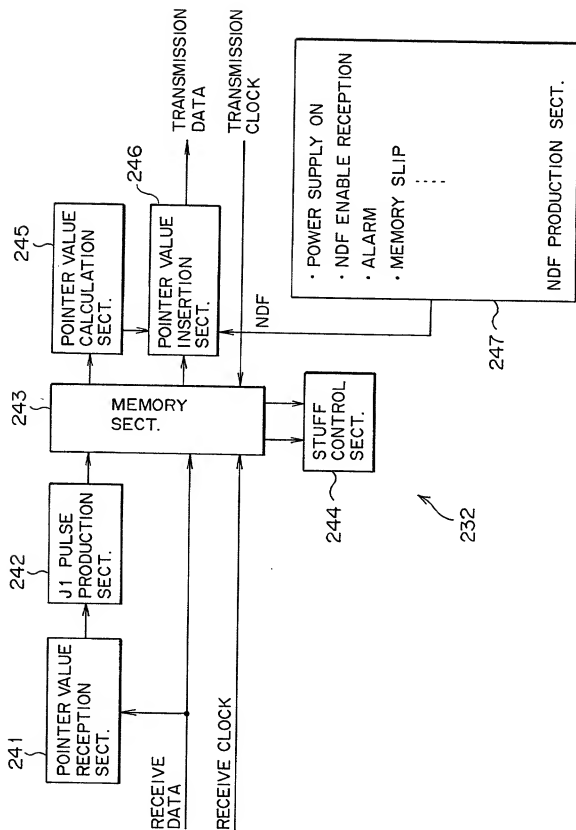




FIG. 51

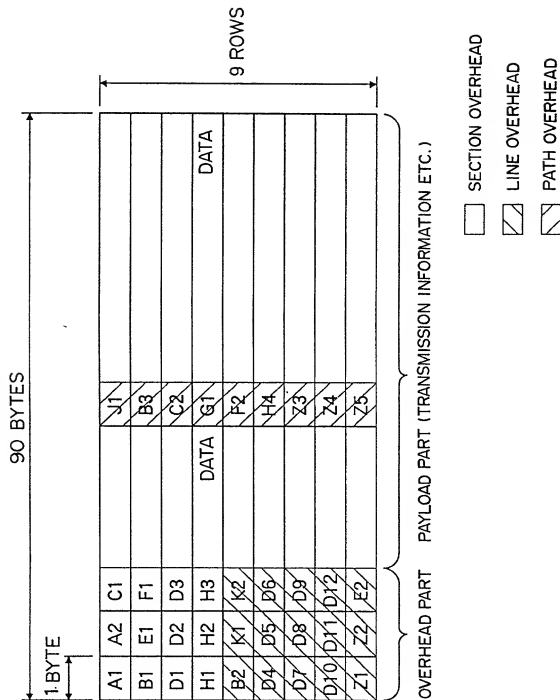
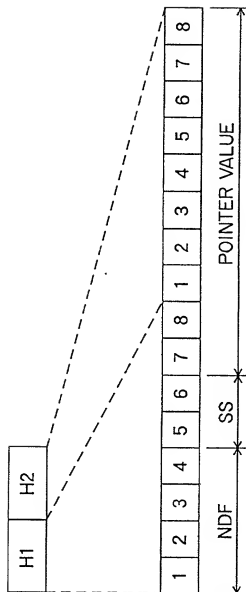


FIG. 52



	1	2	3	4	5	6	7	8	9		89	90
1	A1	A2	C1	522								608
2	B1	E1	F1	609								695
3	D1	D2	D3	696								782
4	H1	H2	H3	0	1	2	3	4	5		85	86
5	B2	K1	K2	87								173
6	D4	D5	D6	174								260
7	D7	D8	D9	261								347
8	D10	D11	D12	348								434
9	Z1	Z2	E2	435								521